DEPARTMENT OF MECHANICAL AND INDUSTRIAL ENGINEERING
MECHANICAL ENGINEERING PROGRAM, BSC.

Course Syllabus

1. **Course number and name**
   ME 572 Thermal Power Plants

2. **Credits and contact hours**
   (3+0) 3 credit hours, 3 contact hours

3. **Course type**
   Face to face Learning Course (3+0)

4. **Instructor's or course coordinator's name**
   Prof. Tariq Alazab

5. **Textbook information**
   Power Plant Engineering by P. K. Nag, TMH Publication, 2014.
   ISBN-13 : 978-9339204044

   a. **Other supplemental materials**
   - Power Plant Engineering by M. M. El Wakil, McGraw Hill
   - Steam & Gas Turbines and Power Plant Engineering by R Yadav, Central Publishing House
   - A Course in Power Plant Engineering by Arora and Domkundwar, Dhanpar Rai & Co.,2010.
   - Instructor's Notes

6. **Specific course information**
   a. **Catalog description**
   This course is concerned with the types, construction, working principles and performance of different types of conventional and non-conventional power plants. The design, construction, operation, and performance of various components of steam, gas, and diesel power plant. It also discusses the basics of nuclear energy and operation of nuclear power plants. The course also covers basics of plant economics and the impact of power plants on the environment.

   b. **Prerequisites or co-requisites**
   Prerequisite: ME 341 Fluid mechanics + ME 222 Thermodynamics 2

   c. **The course is:**

DEPARTMENT OF MECHANICAL AND INDUSTRIAL ENGINEERING
MECHANICAL ENGINEERING PROGRAM, BSC.

Required in Mechanical Engineering Department.

7. Specific goals for the course

a. Course outcomes:

After completion of the course, students are expected to be able to:

1. Comprehend construction and working of various components of coal based thermal power plant. Analyze performance parameters of steam and gas turbines.
2. Understand construction and working of nuclear power plant.
3. Comprehend the pollution problem from thermal power plant and its control methods.
4. Knowledge of the various types of conventional and non-conventional power plants.
5. Calculate the performance parameters of various power plants.

b. The following student outcomes are addressed by the course:

8. Learning Outcomes and their Alignment with Program Educational Objective (PEO's), Methods of Delivery, and Assessment Methods:

Learning Outcomes	Program PEOs	Method of Delivery	Assessment Method
Course Outcomes			
Comprehend construction and working of various components of coal based thermal power plant.	-	Lectures (Example and Problems)	Question in exam
Analyze performance parameters of steam and gas turbines.	-	Lectures (Example and Problems)	Question in exam
Understand construction and working of nuclear power plant.		Lectures (Example and Problems)	Question in exam
Comprehend the pollution problem from thermal power plant and its control methods.	-	Lectures (Example and Problems)	Question in exam

Knowledge of the various types of conventional and non-conventional power plants.	-	Lectures (Example and Problems)	Question in exam
Student Outcomes			

9. Weekly Teaching Plan

Week No.	Lecture	Topic	Method of Delivery
1	Sun (9-10)	Basics of Energy in Jordan	Lecture
	Tue (9-10)	Basics of Energy in Jordan	Lecture
	Thu (9-10)	Basics of Energy in Jordan	Lecture
2	Sun (9-10)	Economics of Power Generation	Lecture
	Tue (9-10)	Economics of Power Generation	Lecture
	Thu (9-10)	Economics of Power Generation	Lecture
3	Sun (9-10)	Diesel Electric Power Plant	Lecture
	Tue (9-10)	Diesel Electric Power Plant	Lecture
	Thu (9-10)	Diesel Electric Power Plant	Lecture
4	Sun (9-10)	Diesel Electric Power Plant	Lecture
	Tue (9-10)	Diesel Electric Power Plant	Lecture
	Thu (9-10)	Diesel Electric Power Plant	Lecture
5	Sun (9-10)	Gas turbine Power Plant	Lecture
	Tue (9-10)	Gas turbine Power Plant	Lecture

DEPARTMENT OF MECHANICAL AND INDUSTRIAL ENGINEERING
MECHANICAL ENGINEERING PROGRAM, BSC.

	Thu (9-10)	First Exam	Exam
6	Sun (9-10)	Gas turbine Power Plant	Lecture
	Tue (9-10)	Gas turbine Power Plant	Lecture
	Thu (9-10)	Gas turbine Power Plant	Lecture
7	Sun (9-10)	Steam Power Plants	Lecture
	Tue (9-10)	Steam Power Plants	Lecture
	Thu (9-10)	Steam Power Plants	Lecture
8	Sun (9-10)	Steam Power Plants	Lecture
	Tue (9-10)	Steam Power Plants	Lecture
	Thu (9-10)	Steam Power Plants	Lecture
9	Sun (9-10)	Combined Cycle Power Plants	Lecture
	Tue (9-10)	Combined Cycle Power Plants	Lecture
	Thu (9-10)	Combined Cycle Power Plants	Lecture
10	Sun (9-10)	Nuclear Power Plants	Lecture
	Tue (9-10)	Nuclear Power Plants	Lecture
	Thu (9-10)	Nuclear Power Plants	Lecture
11	Sun (9-10)	Solar Power Plant	Lecture
	Tue (9-10)	Solar Power Plant	Lecture
	Thu (9-10)	Second Exam	Exam
12	Sun (9-10)	Solar Power Plant	Lecture
	Tue (9-10)	Solar Power Plant	Lecture
	Thu	Solar Power Plant	Lecture

	(9-10)		
13	Sun (9-10)	Wind Energy Plant	Lecture
	Tue (9-10)	Wind Energy Plant	Lecture
	Thu (9-10)	Wind Energy Plant	Lecture
14	Sun (9-10)	Hydroelectric Power Plan	Lecture
	Tue (9-10)	Hydroelectric Power Plan	Lecture
	Thu (9-10)	Hydroelectric Power Plan	Lecture
15	Sun (9-10)	Pollution problems of thermal power plant and its control.	Lecture
	Tue (9-10)	Pollution problems of thermal power plant and its control.	Lecture
	Thu (9-10)	Pollution problems of thermal power plant and its control.	Lecture

10. Grade Distribution:

Assessment	Grade	Date
- First Exam	20%	Fifth Week
- Second Exam	20%	10th Week
- Assignments	10%	
- Final Examination	50%	16th Week

* Make-up exams will be offered for valid reasons. It may be different from regular exams in content and format.